

APPENDIX L

PROJECT CONSTRUCTION COSTS WORKSHEETS

ARIZONA DEPARTMENT OF TRANSPORTATION
ARFF TRAINING FACILITY FEASIBILITY STUDY

Cost Estimate for Schematic Layout #1SB (Traditional)
 November 21, 1995

ADOTFTSB.xls
 Greiner, Inc / DKC

TRADITIONAL FOSSIL FUEL SYSTEM				
DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
<u>BURN AREA</u>				<u>\$164,906</u>
Floor (HDPE Liner)	21,422	sf	\$1.80	\$38,559
Curbs (Refractory Concrete)	471	lf	\$16.00	\$7,540
Interior Crushed Stone (9")	2,380	sy	\$7.70	\$18,327
Berm	524	sy	\$14.00	\$7,330
Zonal Fuel/Water Delivery Network				
Piping (2" CS, Welded, w/ Fittings)	300	lf	\$15.00	\$4,500
Valves (Motor Operated w/ Box)	4	ea	\$850.00	\$3,400
Nozzles	30	ea	\$50.00	\$1,500
Drainage System				
Inlets	3	ea	\$1,700.00	\$5,100
Manholes	3	ea	\$1,550.00	\$4,650
Piping (12" DIP)	800	lf	\$35.00	\$28,000
Knife Gate Valves (12")	4	ea	\$4,000.00	\$16,000
Weir / Control Structure	1	ea	\$5,000.00	\$5,000
Ignition/Flame Generation System	1	ls	\$25,000.00	\$25,000
<u>VEHICLE MANEUVERING AREA</u>				<u>\$119,950</u>
Apron (Crushed Stone)	10,905	sy	\$11.00	\$119,950
<u>MOCKUPS</u>				<u>\$300,000</u>
Fuselage / Pool Fire Trainer	1	ea	\$100,000.00	\$100,000
Confined Entry Fire Trainer	1	ea	\$200,000.00	\$200,000
<u>OPERATIONS BUILDING</u>				<u>\$228,000</u>
Office/Control/Training/ARFF Vehicle Building	2,000	sf	\$100.00	\$200,000
Control Center	1	ls	\$28,000.00	\$28,000
<u>FUEL / WATER STORAGE SYSTEM</u>				<u>\$222,061</u>
Fuel Storage Facility				
Concrete Dike	297	cy	\$350.00	\$103,911
Fuel Storage Tank (10,000G w/ Found.)	1	ea	\$14,000.00	\$14,000
Pumps	1	ea	\$16,000.00	\$16,000
Piping (4" CS, Welded, Coated)	200	lf	\$30.00	\$6,000
Valves	2	ea	\$1,200.00	\$2,400
Distribution Piping				
Piping (2" CS, Welded, Coated, Buried)	800	lf	\$18.00	\$14,400
Valves (Motor Operated w/ Box)	6	ea	\$850.00	\$5,100
Tanker Truck Offloading Rack				
Concrete Truck Pad	200	sy	\$25.00	\$5,000
Equipment Pads	20	cy	\$400.00	\$8,000
Misc. Steel	500	lbs	\$1.10	\$550
Piping (4" to tank)	150	lf	\$30.00	\$4,500
Valves	2	ea	\$1,200.00	\$2,400
Equipment	1	ls	\$20,000.00	\$20,000
Water				
Storage Tank	1	ea	\$10,000.00	\$10,000
Piping (4")	150	lf	\$30.00	\$4,500
Valves	4	ea	\$900.00	\$3,600
Pumps	1	ea	\$1,700.00	\$1,700

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TRADITIONAL FOSSIL FUEL SYSTEM

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
<u>WASTEWATER TREATMENT SYSTEM</u>				<u>\$41,022</u>
Retention /Evaporation Pond	2,756	cy	\$4.00	\$11,022
Oil / Water Separator	1	ea	\$20,000.00	\$20,000
Catch Basin	1	ea	\$10,000.00	\$10,000
<u>OTHER COMPONENTS</u>				<u>\$534,458</u>
Sitework				
Clear & Grub	16	ac	\$1,500.00	\$24,000
Demolition	1	allow	\$5,000.00	\$5,000
Excavation	25,168	cy	\$2.85	\$71,729
Landscaping	1	allow	\$10,000.00	\$10,000
Access Road				
Paving	3,333	sy	\$16.00	\$53,333
Parking Lot				
Curb	150	lf	\$6.50	\$975
Paving	234	sy	\$9.00	\$2,106
Security Fence				
6' Chain link w/ 3 str. barbed wire	3,563	lf	\$12.00	\$42,750
Motorized Vehicle gates	3	ea	\$2,500.00	\$7,500
Water Well				
Well	1	ea	\$10,000.00	\$10,000
Piping (4")	775	lf	\$30.00	\$23,250
Valves & Valve Boxes	2	ea	\$1,400.00	\$2,800
Environmental Monitoring				
Fuel System Leak Detection	1	ls	\$7,500.00	\$7,500
Monitoing Wells	8	ea	\$1,000.00	\$8,000
Water Supply				
Wet Tap	1	ea	\$2,000.00	\$2,000
Piping w Trenching & Backfill	1,300	lf	\$30.00	\$39,000
Testing & Chlorination	1	ls	\$500.00	\$500
Gate Valves w/ Valve Box	4	ea	\$1,400.00	\$5,600
Backflow Preventor	1	ea	\$9,000.00	\$9,000
Sanitary Sewer				
6" Gravity Piping	50	lf	\$20.00	\$1,000
4" Force Main Piping	1,300	lf	\$24.00	\$31,200
Lift Station	1	ea	\$25,000.00	\$25,000
Electrical Service				
Primary Distribution	1,300	lf	\$3.00	\$3,900
Secondary Distribution				
Distribution/Power to Tank Farm & Offloadin	650	lf	\$27.00	\$17,550
Distribution/Power to Fire Trainer Areas	1,200	lf	\$27.00	\$32,400
Distribution to Waste Water Treatment	230	lf	\$27.00	\$6,210
System Controls	1	ls	\$50,000.00	\$50,000
Telephone Service	1,300	lf	\$20.00	\$26,000
Parking Lot Lighting - 25' Alum. Pole	3	ea	\$2,500.00	\$7,500
Appurtenances				
Pavement Markings				
4" Striping	1,466	lf	\$0.20	\$293
18" Stop Bar	130	lf	\$1.55	\$202

ARIZONA DEPARTMENT OF TRANSPORTATION
ARFF TRAINING FACILITY FEASIBILITY STUDY

Cost Estimate for Schematic Layout #1SB (Traditional)
 November 21, 1995

ADOTFTSB.xls
 Greiner, Inc / DKC

TRADITIONAL FOSSIL FUEL SYSTEM

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
Directional Arrows	8	ea	\$55.00	\$440
Pavement Messages	4	ea	\$200.00	\$800
HC Symbols	2	ea	\$185.00	\$370
Signs				
Stop	3	ea	\$100.00	\$300
Entry	1	ea	\$5,000.00	\$5,000
Misc. / Warning	25	ea	\$50.00	\$1,250

SUBTOTAL **\$1,610,397**

Permitting @	1.0%	\$	16,104
Impact Fees @	allowance	\$	75,000
Design Fees @	8.0%	\$	128,832
CE & I Fees @	10.0%	\$	161,040

SUBTOTAL **\$1,991,373**

Contingency 15.0% \$298,706

CONSTRUCTION TOTAL **\$2,290,000**

Firefighting Equipment Oshkosh T-1500 \$ 325,000

PROJECT TOTAL (Rounded) **\$2,615,000**

ARIZONA DEPARTMENT OF TRANSPORTATION
ARFF TRAINING FACILITY FEASIBILITY STUDY

Cost Estimate for Schematic Layout #1SB (Fossil Fuel - British Concept)
 November 21, 1995

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BRITISH CONCEPT (FOSSIL FUEL SYSTEM)			
DESCRIPTION	QUANTITY	UNIT	COST
<u>BURN AREA</u>			<u>\$143,724</u>
Floor (HDPE Liner)	17,672	sf	\$31,809
Curbs (Refractory Concrete)	471	lf	\$7,540
Interior Crushed Stone (9")	1,964	sy	\$15,119
Berm	524	sy	\$7,330
Zonal Fuel/Water Delivery Network			
Piping (2" CS, Welded, w/ Fittings)	300	lf	\$4,500
Valve Control Manifold	1	ls	\$3,292
Nozzles	30	ea	\$1,050
Pressure Pump	1	ea	\$12,834
Drainage System			
Inlets	2	ea	\$3,400
Manholes	2	ea	\$3,100
Piping (12" DIP)	450	lf	\$15,750
Knife Gate Valves (12")	2	ea	\$8,000
Weir / Control Structure	1	ea	\$5,000
Ignition/Flame Generation System	1	ls	\$25,000
<u>VEHICLE MANEUVERING AREA</u>			<u>\$124,533</u>
Apron (Crushed Stone)	11,321	sy	\$124,533
<u>MOCKUPS</u>			<u>\$395,250</u>
Combined Fuselage/Pool Fire/Confined Entry Trainer	1	ea	\$395,250
<u>OPERATIONS BUILDING</u>			<u>\$228,000</u>
Office/Control/Training/ARFF Vehicle Building	2,000	sf	\$200,000
Control Center	1	ls	\$28,000
<u>FUEL / WATER STORAGE SYSTEM</u>			<u>\$211,118</u>
Fuel Storage Facility			
Concrete Dike	297	cy	\$103,950
Fuel Storage Tank (10,000G w/ Found.)	1	ea	\$14,000
Pressure Pumps	1	ea	\$12,834
Piping (2" CS, Welded, Coated)	200	lf	\$3,000
Valves	2	ea	\$2,400
Distribution Piping			
Piping (2" CS, Welded, Coated, Buried)	450	lf	\$8,100
Valves (Motor Operated w/ Box)	2	ea	\$6,584
Tanker Truck Offloading Rack			
Concrete Truck Pad	200	sy	\$5,000
Equipment Pads	20	cy	\$8,000
Misc. Steel	500	lbs	\$550
Piping (4" to tank)	150	lf	\$4,500
Valves	2	ea	\$2,400
Equipment	1	ls	\$20,000
Water			
Storage Tank	1	ea	\$10,000
Piping (4")	150	lf	\$4,500
Valves	4	ea	\$3,600
Pumps	1	ea	\$1,700

ARIZONA DEPARTMENT OF TRANSPORTATION
ARFF TRAINING FACILITY FEASIBILITY STUDY

Cost Estimate for Schematic Layout #1SB (Fossil Fuel - British Concept)
 November 21, 1995

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BRITISH CONCEPT (FOSSIL FUEL SYSTEM)				
DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
WASTEWATER TREATMENT SYSTEM				\$41,022
Retention /Evaporation Pond	2,756	cy	\$4.00	\$11,022
Oil / Water Seperator	1	ea	\$20,000.00	\$20,000
Catch Basin	1	ea	\$10,000.00	\$10,000
OTHER COMPONENTS				\$534,458
Sitework				
Clear & Grub	16	ac	\$1,500.00	\$24,000
Demolition	1	allow	\$5,000.00	\$5,000
Excavation	25,168	cy	\$2.85	\$71,729
Landscaping	1	allow	\$10,000.00	\$10,000
Access Road				
Paving	3,333	sy	\$16.00	\$53,333
Parking Lot				
Curb	150	lf	\$6.50	\$975
Paving	234	sy	\$9.00	\$2,106
Security Fence				
6' Chain link w/ 3 str. barbed wire	3,563	lf	\$12.00	\$42,750
Motorized Vehicle gates	3	ea	\$2,500.00	\$7,500
Water Well				
Well	1	ea	\$10,000.00	\$10,000
Piping (4")	775	lf	\$30.00	\$23,250
Valves & Valve Boxes	2	ea	\$1,400.00	\$2,800
Environmental Monitoring				
Fuel System Leak Detection	1	ls	\$7,500.00	\$7,500
Monitoing Wells	8	ea	\$1,000.00	\$8,000
Water Supply				
Wet Tap	1	ea	\$2,000.00	\$2,000
Piping w Trenching & Backfill	1,300	lf	\$30.00	\$39,000
Testing & Chlorination	1	ls	\$500.00	\$500
Gate Valves w/ Valve Box	4	ea	\$1,400.00	\$5,600
Backflow Preventor	1	ea	\$9,000.00	\$9,000
Sanitary Sewer				
6" Gravity Piping	50	lf	\$20.00	\$1,000
4" Force Main Piping	1,300	lf	\$24.00	\$31,200
Lift Station	1	ea	\$25,000.00	\$25,000
Electrical Service				
Primary Distribution	1,300	lf	\$3.00	\$3,900
Secondary Distribution				
Distribution/Power to Tank Farm & Offloadin	650	lf	\$27.00	\$17,550
Distribution/Power to Fire Trainer Areas	1,200	lf	\$27.00	\$32,400
Distribution to Waste Water Treatment	230	lf	\$27.00	\$6,210
System Controls	1	ls	\$50,000.00	\$50,000
Telephone Service	1,300	lf	\$20.00	\$26,000
Parking Lot Lighting - 25' Alum. Pole	3	ea	\$2,500.00	\$7,500
Appurtenances				
Pavement Markings				
4" Striping	1,466	lf	\$0.20	\$293
18" Stop Bar	130	lf	\$1.55	\$202

ARIZONA DEPARTMENT OF TRANSPORTATION
ARFF TRAINING FACILITY FEASIBILITY STUDY

Cost Estimate for Schematic Layout #1SB (Fossil Fuel - British Concept)
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BRITISH CONCEPT (FOSSIL FUEL SYSTEM)			
DESCRIPTION	QUANTITY	UNIT	COST
Directional Arrows	8	ea	\$55.00
Pavement Messages	4	ea	\$200.00
HC Symbols	2	ea	\$185.00
Signs			
Stop	3	ea	\$100.00
Entry	1	ea	\$5,000.00
Misc. / Warning	25	ea	\$50.00

SUBTOTAL **\$1,678,105**

Permitting @	1.0%	\$	16,781
Impact Fees @	allowance	\$	75,000
Design Fees @	8.0%	\$	134,248
CE & I Fees @	10.0%	\$	167,811

SUBTOTAL **\$2,071,945**

Contingency 15.0% \$310,792

CONSTRUCTION TOTAL **\$2,380,000**

Shipping from England	\$25,000.00
Firefighting Equipment Oshkosh T-1500	\$325,000
PROJECT TOTAL (Rounded)	\$2,730,000

ARIZONA DEPARTMENT OF TRANSPORTATION
ARFF TRAINING FACILITY FEASIBILITY STUDY

Cost Estimate for Schematic Layout #1SB (Propane Fuel)

November 21, 1995

ADOTFTSB.xls
 Greiner, Inc / DKC

DESCRIPTION	QUANTITY	UNIT	PROPANE FUEL SYSTEM		COST
			UNIT PRICE		
<u>BURN AREA</u>					<u>\$130,506</u>
Floor (HDPE Liner)	21,422	sf	\$1.80		\$38,559
Curbs (Refractory Concrete)	471	lf	\$16.00		\$7,540
Interior Crushed Stone (9")	2,380	sy	\$7.70		\$18,327
Berm	524	sy	\$14.00		\$7,330
Zonal Fuel/Water Delivery Network	(Included in Mockup price)				
Drainage System					
Inlets	3	ea	\$1,700.00		\$5,100
Manholes	3	ea	\$1,550.00		\$4,650
Piping (12" DIP)	800	lf	\$35.00		\$28,000
Knife Gate Valves (12")	4	ea	\$4,000.00		\$16,000
Weir / Control Structure	1	ea	\$5,000.00		\$5,000
<u>VEHICLE MANEUVERING AREA</u>					<u>\$119,950</u>
Apron (Crushed Stone)	10,905	sy	\$11.00		\$119,950
<u>MOCKUPS</u>					<u>\$3,000,000</u>
Fuselage / Pool Fire Trainer	1	ea	\$1,500,000.00		\$1,500,000
Confined Entry Fire Trainer	1	ea	\$1,500,000.00		\$1,500,000
<u>OPERATIONS BUILDING</u>					<u>\$700,000</u>
Office/Control/Training/ARFF Vehicle Building	2,000	sf	\$100.00		\$200,000
Control Center	1	ls	\$500,000.00		\$500,000
<u>FUEL / WATER STORAGE SYSTEM</u>					<u>\$82,650</u>
Fuel Storage Facility					
Fuel Storage Tank (10,000G w/ Found.)	1	ea	\$14,000.00		\$14,000
Piping (4" CS, Welded, Coated)	200	lf	\$30.00		\$6,000
Valves	2	ea	\$1,200.00		\$2,400
Distribution Piping	(Included in Mockup price)				
Tanker Truck Offloading Rack					
Concrete Truck Pad	200	sy	\$25.00		\$5,000
Equipment Pads	20	cy	\$400.00		\$8,000
Misc. Steel	500	lbs	\$1.10		\$550
Piping (4" to tank)	150	lf	\$30.00		\$4,500
Valves	2	ea	\$1,200.00		\$2,400
Equipment	1	ls	\$20,000.00		\$20,000
Water					
Storage Tank	1	ea	\$10,000.00		\$10,000
Piping (4")	150	lf	\$30.00		\$4,500
Valves	4	ea	\$900.00		\$3,600
Pumps	1	ea	\$1,700.00		\$1,700
<u>WASTEWATER TREATMENT SYSTEM</u>					<u>\$21,022</u>
Retention /Evaporation Pond	2,756	cy	\$4.00		\$11,022
Catch Basin	1	ea	\$10,000.00		\$10,000

ARIZONA DEPARTMENT OF TRANSPORTATION
ARFF TRAINING FACILITY FEASIBILITY STUDY

Cost Estimate for Schematic Layout #1SB (Propane Fuel)
 November 21, 1995

ADOTFTSB.xls
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		<u>PROPANE FUEL SYSTEM</u>		
DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
<u>OTHER COMPONENTS</u>				<u>\$452,058</u>
Sitework				
Clear & Grub	16	ac	\$1,500.00	\$24,000
Demolition	1	allow	\$5,000.00	\$5,000
Excavation	25,168	cy	\$2.85	\$71,729
Landscaping	1	allow	\$10,000.00	\$10,000
Access Road				
Paving	3,333	sy	\$16.00	\$53,333
Parking Lot				
Curb	150	lf	\$6.50	\$975
Paving	234	sy	\$9.00	\$2,106
Security Fence				
6' Chain link w/ 3 str. barbed wire	3,563	lf	\$12.00	\$42,750
Motorized Vehicle gates	3	ea	\$2,500.00	\$7,500
Water Well				
Well	1	ea	\$10,000.00	\$10,000
Piping (4")	775	lf	\$30.00	\$23,250
Valves & Valve Boxes	2	ea	\$1,400.00	\$2,800
Environmental Monitoring				
Fuel System Leak Detection	1	ls	\$7,500.00	\$7,500
Monitoing Wells	8	ea	\$1,000.00	\$8,000
Water Supply				
Wet Tap	1	ea	\$2,000.00	\$2,000
Piping w Trenching & Backfill	1,300	lf	\$30.00	\$39,000
Testing & Chlorination	1	ls	\$500.00	\$500
Gate Valves w/ Valve Box	4	ea	\$1,400.00	\$5,600
Backflow Preventor	1	ea	\$9,000.00	\$9,000
Sanitary Sewer				
6" Gravity Piping	50	lf	\$20.00	\$1,000
4" Force Main Piping	1,300	lf	\$24.00	\$31,200
Lift Station	1	ea	\$25,000.00	\$25,000
Electrical Service				
Primary Distribution	1,300	lf	\$3.00	\$3,900
Secondary Distribution				
Distribution/Power to Tank Farm & Offloadin	650	lf	\$27.00	\$17,550
Distribution/Power to Fire Trainer Areas	(Included in Mockup price)			
Distribution to Waste Water Treatment	230	lf	\$27.00	\$6,210
System Controls	(Included in Mockup price)			
Telephone Service	1,300	lf	\$20.00	\$26,000
Parking Lot Lighting - 25' Alum. Pole	3	ea	\$2,500.00	\$7,500
Appurtenances				
Pavement Markings				
4" Striping	1,466	lf	\$0.20	\$293
18" Stop Bar	130	lf	\$1.55	\$202
Directional Arrows	8	ea	\$55.00	\$440

ARIZONA DEPARTMENT OF TRANSPORTATION
ARFF TRAINING FACILITY FEASIBILITY STUDY

Cost Estimate for Schematic Layout #1SB (Propane Fuel)
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DESCRIPTION	QUANTITY	UNIT	PROPANE FUEL SYSTEM	
			UNIT PRICE	COST
Pavement Messages	4	ea	\$200.00	\$800
HC Symbols	2	ea	\$185.00	\$370
Signs				
Stop	3	ea	\$100.00	\$300
Entry	1	ea	\$5,000.00	\$5,000
Misc. / Warning	25	ea	\$50.00	\$1,250

SUBTOTAL **\$4,506,186**

Permitting @	1.0%	\$	45,062
Impact Fees @	allowance	\$	75,000
Design Fees @	8.0%	\$	360,495
CE & I Fees @	10.0%	\$	450,619
SUBTOTAL			\$5,437,362

Contingency 15.0% \$815,604

CONSTRUCTION TOTAL **\$6,250,000**

Firefighting Equipment Oshkosh T-1500 \$ 325,000

PROJECT TOTAL (Rounded) **\$6,575,000**